Progress Report
Project number MT141
for the Period
January 1, 2007 to June 30, 2007

PROJECT TITLE: Evaluation of Methods for Estimation of Bridge-Pier Scour for Coarse Bed Streams Based on Measured Pier Scour in Montana

PROJECT CHIEF: Steve Holnbeck, Hydrologist, USGS

COOPERATING AGENCIES: Montana Department of Transportation

BEGIN DATE: July 2000

COMPLETION DATE: December 31, 2007

FUNDING: FY2000-- $7,200; FY2001-- $103,090; FY2002--$25,990; FY2003--$25,990

FY2004--$25,990; FY2005--$25,990; FY2006--$25,990 ; FY2007--$60,800 ; FY2008--$20,750

OBJECTIVES: The major objectives of this project are to (1) evaluate existing methods for estimation of pier scour based on currently available pier-scour measurements in Montana and other States having coarse-bed streams and (2) collect additional pier-scour data for coarse-bed streams in Montana over a 6-year period.

SCOPE: Pier-scour measurements will be made each year at 10-25 sites, depending upon hydrologic conditions. At the end of the data-collection period, data will be compiled and described in a report.

PRODUCTS: Two USGS Scientific Investigations Reports are proposed. The first report was published and describes the comparisons between equations based on published data. The second (planned for publication in 2007) will document and provide selected interpretive results for pier-scour data obtained during the data-collection period.

PROGRESS: Approximately 125 pier scour measurements were made at about 75 bridge sites over the 6-year project for a range of bed-material sizes, pier sizes, and hydraulic conditions. Selected measurements were also made in the seventh year (2007). Of these measurements, about 103 measurements at 60 bridges were used as final study results. Results include relations similar to those developed in past studies and results for surface and subsurface bed material not investigated or reported in any past studies. All fieldwork is now complete and data have been analyzed. A draft report is being finalized and will be submitted to the cooperator for colleague review by mid to late July 2007.